Nos. 14-1437 & 14-1485

United States Court of Appeals for the Federal Circuit

WI-LAN, INC.

Plaintiff-Appellant,

– v. –

APPLE INC.

Defendant-Cross-Appellant.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS, CASE NOS. 2:11-CV-68, 2:12-CV-600
HON. JUDGE RODNEY GILSTRAP.

PRINCIPAL AND RESPONSE BRIEF OF DEFENDANT-CROSS-APPELLANT APPLE INC.

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Claim 1

1. A transceiver for transmitting a first stream of data symbols, the transceiver comprising:

a converter for converting the first stream of data symbols into plural sets of N data symbols each;

first computing means for operating on the plural sets of N data symbols to produce modulated data symbols corresponding to an invertible randomized spreading of the first stream of data symbols; and

means to combine the modulated data symbols for transmission.

A100, col. 6:42-51.

Claim 10

10. The transceiver of claim 1 further comprising:

means for receiving a sequence of modulated data symbols, the modulated data symbols having been generated by invertible randomized spreading of a second stream of data symbols; and

second computing means for operating on the sequence of modulated data symbols to produce an estimate of the second stream of data symbols.

A101, col. 7:32-40.

CERTIFICATE OF INTEREST

Counsel for defendant-cross-appellant certifies the following:

1. We represent Apple Inc.

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented: N/A

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented: N/A

4. The names of all law firms and the partners or associates that appeared for party or amicus now represented in trial court or agency or are expected to appear in this court are:

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STATEMENT OF RELATED CASES

No other appeal involving this civil action was previously before this or any other appellate court.

Wi-LAN, Inc. ("Wi-LAN") previously asserted the patent at issue against Apple Inc. ("Apple") and a host of other technology companies alleging infringement by various wireless and other products, such as laptop computers and cameras. *Wi-LAN, Inc. v. Acer Inc., et al.*, No. 2:07-cv-00473 (filed Oct. 31, 2007) (E.D. Tex.); *Wi-LAN, Inc. v. Westell Techs., Inc.*, *et al.*, No. 2:07-cv-00474 (filed Nov. 1, 2007) (E.D. Tex.); *Wi-LAN, Inc. v. Research In Motion Corp., et al.*, No. 2:08-cv-00247 (filed June 19, 2008) (E.D. Tex). Those cases settled. This case involves Wi-LAN's assertion of the same patent against Apple's iPhone and iPad products compatible with 3G cellular technology.

INTRODUCTION

This is yet another patent suit against Apple purportedly based on Apple's incorporation of industry-standard technology into its innovative and popular mobile devices.[1] Here, a once promising device manufacturing company, Wi-LAN, now centers its business around patent licensing and litigation efforts. The technology at issue here regards the wireless transmission of data. Wi-LAN asserts U.S. Patent No. RE37,802, a patent that claims a device that converts a single lengthy stream of data into multiple *evenly distributed* data sets and then pseudo-randomizes the data *before* recombining the data for transmission. This technique makes sense in a local area wireless network (like in a home) because it improves processing speed by sacrificing plentiful local signal bandwidth and power.

By contrast, the parties and the district court all agree that the accused products, Apple's 3G mobile devices, such as the iPhone and iPad, convert the stream of data into multiple data sets that are

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[1] *See, e.g.*, *Golden Bridge Technology, Inc. v. Apple Inc.*, No. 5:12-cv-4882 (N.D. Cal.); *Apple Inc. v. Motorola, Inc.*, No. 1:11-cv-8540 (N.D. Ill.); *Multimedia Patent Trust v. Apple Inc.*, No. 3:10-cv-2618 (S.D. Cal.); *Apple Inc. v. Motorola Mobility, Inc.*, No. 3:11-cv-178 (W.D. Wis.); *Nokia Corp. v. Apple Inc.*, No. 1:09-791 (D. Del.).

not evenly distributed and that Apple's devices pseudo-randomize the data *after* the data is recombined for transmission. This approach makes sense in the cellular network setting because it conserves scarce bandwidth and power. Because of these key differences between the patent and the accused products, the jury's non-infringement verdict was correct on the merits and the district court properly deferred to it.

The jury also found Wi-LAN's patent invalid because this industry-standard technology had already been revealed by prior art. But the district court overruled the jury, announcing after trial—for the first time—that the asserted claims include a "complex multiplier." That construction was contrary to the one agreed upon by both parties before trial. Based on this post-trial construction, the district court reversed the jury's anticipation verdict. The district court's belated U-turn was erroneous. The jury's invalidity ruling should be reinstated.

JURISDICTIONAL STATEMENT

The district court had jurisdiction over this patent litigation. 28 U.S.C. §§ 1331, 1338(a). After the jury returned a verdict for Apple, A361-65, the district court entered judgment on October 24, 2013, A1, and then granted, in part, Wi-LAN's motion for judgment as a matter of

law ("JMOL") on April 3, 2014, A2-17. Wi-LAN appealed, A10,313-15, and Apple timely cross appealed on May 1, 2014, A10,316-18; Fed. R. App. P. 4(a). This Court has jurisdiction. 28 U.S.C. § 1295(a).

STATEMENT OF THE ISSUES

1. Claim 1 requires a device that converts a stream of data symbols "into plural sets of N data symbols each." The first question is whether the jury's non-infringement verdict should be affirmed because the accused devices do not convert a stream of data into multiple data sets by evenly distributing the data among output paths.

2. Claim 1 requires a means for producing "modulated data symbols" "corresponding" to pseudo-randomized data and a "means to combine the modulated data symbols for transmission." The second question is whether the jury's non-infringement verdict should be affirmed because the accused devices do not pseudo-randomize the data before it is combined for transmission.

3. The jury found the asserted patent invalid after Apple presented three prior art references. Post-trial, the district court for the first time ruled that the claimed invention had an additional element (a "complex multiplier") and solely on the basis of this new, post-trial

construction of the claim reversed the jury's invalidity ruling. The third question presented is whether the district court erred in overruling the jury's invalidity verdict.

4. The technology described in the asserted patent is more appropriate to local area networks than wide external networks. At trial, Wi-LAN did not object to Apple referring to the patent as a "Wi-Fi" or "LAN" patent. The fourth question presented is whether the district court properly denied Wi-LAN's request for a new trial based on Apple's description of the patent as a Wi-Fi or LAN patent.

STATEMENT OF THE CASE

This case involves the technology for transmitting large amounts of digital information wirelessly. The patent (consistent with Wi-LAN's name) covers a transmission technique most appropriate in a local area network ("LAN") or Wi-Fi network. A local area network or LAN is your typical home wireless network—a PC or a laptop that connects wirelessly to a nearby router. A1022. As detailed below, the technology used to allow mobile wireless devices to transfer information to one another is complex but builds off of long-standing methods used in broadcast radio.

The Basics Of Wireless Communication

Radio communication requires a transmitter and a receiver or a "transceiver" serving both roles. A1731. A transmitter is a type of electric circuit that creates a pattern of electromagnetic waves. The transmitter uses an oscillator to cause the electric current within the circuit to rise and fall in accordance with a sine wave, thereby generating an electromagnetic wave that is broadcast into space. A3545. The wave's "frequency" refers to how many times the wave cycles per second. A3545.

Digital information exists as a series of 0s and 1s. A730. Radio waves can represent this digital information through a process called "modulation." A3546. Amplitude modulation (AM) and frequency modulation (FM) are the most familiar examples of modulation. When a radio wave is amplitude modulated, the data is put on the wave by slight increases and decreases in the wave's *strength*. When a radio wave is frequency modulated, the data is put on the wave by slight increases and decreases in the wave's *frequency*. A3546. A demodulator at the receiver can interpret these changes in the wave's strength or frequency and determine the transmitted digital message.

Digital information conveyed by radio waves is sometimes referred to as "data symbols." With basic forms of AM and FM modulation, the radio wave can be changed between two states, and each state correlates to either a 0 bit or a 1 bit. There are more complex modulation schemes that allow a wave to be changed between more than two states. In those cases, each change represents a single "data symbol," which potentially correlates to several bits. For example, if the wave can be changed between four states, each "data symbol" can represent two bits of data (00, 01, 10, 11).

Direct-Sequence Spread Spectrum (DSSS)

"Direct-Sequence Spread Spectrum" (DSSS) is a method of solving the problem of message intercept with AM and FM methods of radio wave modulation. A98, col. 1:22-48. For example, it is relatively easy for an eavesdropper to scan the radio spectrum, intercept a transmitted message, and listen to messages intended for others. A1729. Or, as anyone with a radio has experienced, a much stronger signal on the same frequency could (either intentionally or unintentionally) disrupt the message. A98, col. 1:35-48.

DSSS is a method of "spreading" a transmitted signal so that it cannot be so easily intercepted. It can be used in combination with several modulation methods. A1729. To form a DSSS signal, the original data signal carrying digital information (or data symbols) is multiplied by a very high frequency signal carrying a long sequence of random-seeming code. A98, col. 1:25-28. This sequence of code symbols is referred to as a "pseudo random noise (PN) sequences," sometimes referred to as "pseudo-noise" sequences for brevity. A98, col. 1:26-28. By multiplying the signal by the pseudo-noise sequence, the DSSS modulated signal is spread over several frequencies called a "band." A receiver with the corresponding code can "invert" or reverse the spreading and recover the original data. A1747.

With a DSSS signal, a person scanning the spectrum would only detect what appears to be natural ambient noise on several frequencies. Because of this, it is very difficult for others to intercept or jam the hidden signal.

Code Division Multiple Access (CDMA)

A downside of DSSS is that one message occupies a large band of the spectrum, making it difficult for multiple users to transmit data at

the same time. A98, col. 1:48-50. "Code Division Multiple Access" (CDMA) is one technique for addressing this problem. *Id.*, col. 1:52-54.

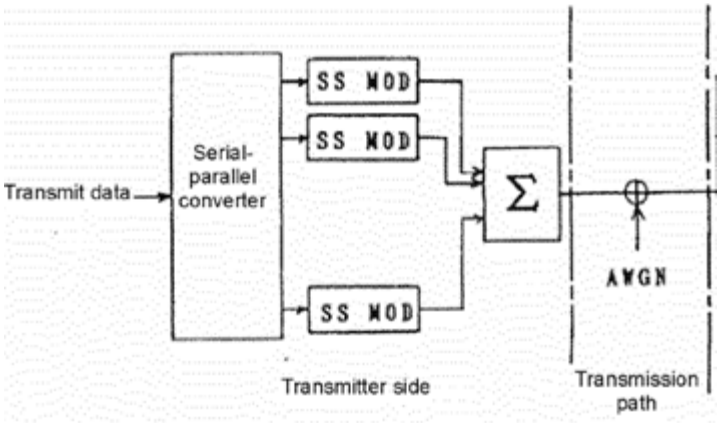
Under CDMA, multiple users transmit signals modulated across the same band with each user using a different DSSS spreading code. A1022-23; A3557, col. 2:21-35. As with DSSS, the transmitted code is pseudo-random to allow the message to appear noise-like. A1038. A receiver with the corresponding pseudo-noise code can demodulate the combined signal and recover the user's specific transmitted message. A1023. As the "multiple" in "CDMA" indicates, the primary difference between CDMA and DSSS is that the resulting noise-like signal under CDMA is broadcast together on the same band as the other noise-like signals of other users, forming a combined noise-like signal. A1023. And because the receivers on the other end have only the code to recover the message intended for that particular receiver, only the message intended for that receiver can be and is decoded.

Improvements To CDMA Transceivers

As mobile devices became more popular, there was a need for faster CDMA solutions. Many solutions were suggested. *See, e.g.*, A1041-42, 10,340-65.

One solution was explained in a 1989 paper written by Shingenobu Sasaki. Sasaki introduced the concept of modulating CDMA messages in a series of parallel operations. A10,334. Rather than taking an entire message, coding it with one code, and transmitting it, Sasaki disclosed a CDMA transceiver that divided a message into multiple sets that were each modulated, randomized at the same time, and finally recombined into a message for transmission. A1035-38, 10,335. As illustrated below from left to right, the device uses a "serial-parallel" converter, which is a converter that takes a stream of data and splits it among multiple parallel output paths. The data on these output paths is simultaneously modulated by separate "SS MOD" modulators. After being modulated in parallel, the data is recombined for transmission by the combiner "∑".[2]

[2] A similar solution was set out by Klein S. Gilhousen at Qualcomm. A1038-40, 3552-73.



A10,335. By modulating parts of the message at the same time (rather than modulating the whole message as one piece), the system disclosed by Sasaki is able to process the message for transmission much faster.

Wi-LAN's Patent

In the early 1990s, Wi-LAN's founders, Drs. Zaghloul and Fattouche, introduced Model 902-20, a wireless network router that promised to allow users to "cut the [internet] cord." A796. The signal's range was limited to the local area (i.e., a house). *See* A772, 1005-06. Notably, "in a [LAN] environment, … bandwidth … can be squandered… to simplify some other aspect of the design or the operation of the wireless local area network" because local bandwidth is free, A1071, and, typically, "only a handful of clients" are using any given wireless router, A1022. Devices that operate on a LAN (like a laptop or desktop computer) tend to be either plugged in or charged

frequently so power conservation is less critical than in other mobile contexts, like cellular phones. *See* A772, 1005-06.

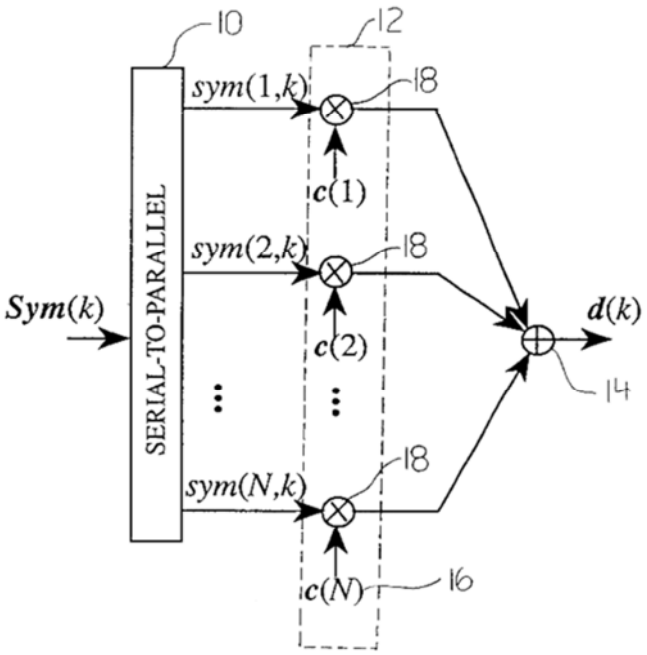
In 1992, Drs. Zaghloul and Fattouche filed for a patent on a wireless communication method, and the patent later issued as U.S. Patent No. 5,282,222. Drs. Zaghloul and Fattouche then filed a continuation-in-part to the '222 patent, with an entirely different specification, in January of 1994. That continuation-in-part is the patent at issue here, U.S. Patent No. RE37,802, entitled "Multicode Direct Sequence Spread Spectrum."[3]

The '802 patent was filed nearly four years after the Sasaki paper was published. The '802 patent's purported contribution to the field is the same as that set out in the Sasaki reference. Whereas in traditional DSSS systems, all of a single transmission is spread using the user's specific pseudo-noise code, the '802 patent's method splits each user's message up into multiple sets (or groups) before spreading. A99, col. 4:1-2; A1743-46. The digital data—referred to in the patent as "data symbols"—take parallel paths through the transceiver so that the data can be modulated and randomized simultaneously by different

[3] The '802 patent is a reissue of U.S. Patent No. 5,555,268.

pseudo-noise codes. A99, col. 4:7-12. The data is then recombined for eventual transmission. *Id*., col. 4:5-7.

Figure 1 of the '802 patent illustrates this process.



A78 (Fig. 1).

Figure 1 is a time-lapse illustration of what happens starting at the moment that one section of the data stream labeled Sym(k) enters the "converter **10**." That section of the data stream enters the "serial-to-parallel" "converter **10**," and is converted into a set of symbols that the converter distributes along parallel output paths with each path containing the same number of data symbols. Thus, Sym(K) is converted into a set of parallel data symbols, labeled sym(1,k), sym(2,k) all the way through sym(N,k). The patent explains "Sym(k) … is the

kth information-bearing vector containing N symbols," A98, col. 2:38-40, meaning that Sym(k) is just one of many sets of N symbols derived from the data stream being transmitted via the transceiver shown in Figure 1.

Viewed over the course of transmitting a stream of data, the data stream enters the converter one section at a time (one example being Sym(k)), and the converter converts each section of the data stream into a set of data symbols with each data symbol distributed on its own separate output path (shown by the lines with the arrows leading from "converter 10" to the "computing means 12"). The set of data symbols shown in Fig. 1 is, collectively, symbols sym(1,k), sym(2,k) … sym(N,k), each of which is on its own separate path. Over the course of transmitting an entire stream of data, the stream of data symbols is converted into plural (i.e., multiple) sets of data symbols, each set of data symbols being distributed along multiple output paths.

The size of each section of the stream and thus the number of data symbols per set is equal to N. So, for example, if N is equal to 10, when a message with many data symbols is being transmitted, a section of the stream containing 10 data symbols (sym(1,k)…sym(10,k)) enters the

converter, and the converter evenly distributes the symbols across 10 output paths. The converter repeats this process by taking the next 10 data symbols from the message and separating them onto the same 10 paths as the first section. And so on.

In the language of claim 1, the transceiver includes a "converter for converting the first stream of data symbols into plural sets of N data symbols each." A100, col. 6:42-51. Because a single set of data symbols would be sym(1,k), sym(2,k) … sym(N,k), the "plural sets of N data" in the claim refers to the multiple instances of N data symbols leaving the converter on parallel output paths.[4]

After being converted, the now-evenly-distributed sets of N data symbols enter the "computing means **12**" which modulates and randomizes each of the data symbols simultaneously. A99, col. 4:2-5.

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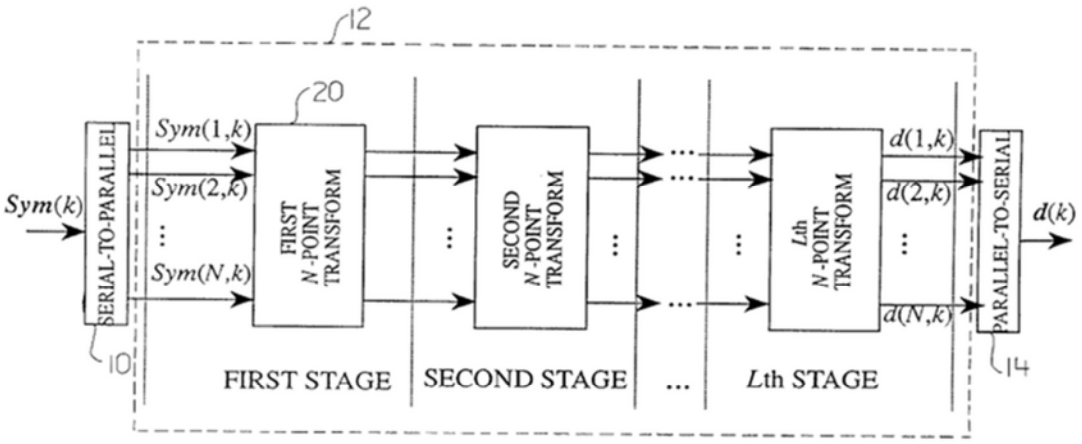
[4] The value of "N" does *not* refer to the number of sections of the stream that enter the converter. The stream is divided into as many "plural" groups as necessary to convert the entire stream, while the number of output paths from the converter is determined by N (the size of each individual section of data). So, to return to the N=10 example, if the stream of data is 2000 symbols long, there will be 200 individual sections of the stream that enter the converter and 200 sets that exit the converter. The number of data output paths will remain 10 because each data symbol in the set of 10 data symbols is separated onto one of the 10 paths.

The data symbols are randomized in such a way that they can be de-randomized or reversed by the receiver of the ultimate message with the proper code on the other end of the transmission. In the patent's terms, the "computing means **12** operates on the plural sets of N data symbols to produce modulated data symbols corresponding to an invertible randomized spreading of the stream of data symbols." A99, col. 4:2-5. Last, "a combiner **14** combines the modulated data symbols for transmission." *Id.*, col. 4:5-7.

As the patent explains, the main novelty of "Multicode Direct Sequence Spread Spectrum" is that the invention allows "a single transceiver [] to use more than one code *at the same time*." A98, col. 1:1-2, 2:3-5 (emphasis added). This provides one of the patent's central claimed advantages: The data symbols can be modulated (on the transmitting end) and demodulated (on the receiving end) in a series of "low complexity parallel operations," thus increasing the device's capability to process data quickly. A98 col. 2:3-5, 2:16-19. Because the data message is modulated and randomized by parallel operations, the data message is processed at greater speed. A75 (Abstract); *accord* A99, col. 4:7-12 ("[A] modulator 18 to modulate each

ith data symbol from each set of N data symbols with the I code symbol from the N code symbol[s] to generate N modulated data symbols, and thereby spread each I data symbol over a separate code symbol.").

The '802 patent describes two embodiments of the claimed transceiver. As the embodiment depicted in Figure 1 illustrates, each of the data symbols within each of the sets can be modulated using a separate pseudo-noise code (c(1) through c(N)). A99, col. 4:2-12. Figure 4 depicts an alternative embodiment of the claimed transceiver where the data symbols are spread and randomized using a series of "N-point transforms." A81 (Fig. 4); A99, col. 4:38-43. A transform is a (generally complicated) mathematical function that can operate on a value to consistently yield a different value so that when a number goes into a transform, a specific, different number always comes out. A795. Similarly, a transform can be reversed to change the output number back to the original number. As a result, the transforms' spreading and randomization processes are reversible (or, in the patent's parlance, "invertible"). Figure 4 displays the N-Point transform embodiment:



A81 (Fig. 4). Just as in Figure 1, a stream of data symbols enters from the left. The converter **10** separates the sections of the stream of data symbols into multiple sets of data symbols which are evenly distributed across N output paths. So, again, Sym(k) enters the converter and is converted into a set of symbols that the converter distributes along N output paths with each path containing the same amount of data symbols (Sym(1,k), Sym(2,k), … Sym(N,k)). Then, those data symbols (Sym(1,k), Sym(2,k), … Sym(N,k)) are all modulated and randomized in parallel by a series of "N-point transforms." A81 (Fig. 4); A99, col. 4:40-43. The patent explains that these transforms can include commonly known transforms such as the Discrete Fourier Transform and Walsh Transforms, and several others. A99-100, col. 4:66-5:12. The patent also explains that the transforms can include a "randomizer transform." *Id.* Again, after randomization, "a combiner **14** combines

the modulated data symbols for transmission." A81 (Fig. 4); A99, col. 4:5-7.

Only claims 1 and 10 of the '802 patent are asserted. Claim 1 reads:

> 1. A transceiver for transmitting a first stream of data symbols, the transceiver comprising:
> a converter for converting the first stream of data symbols into plural sets of N data symbols each;
> first computing means for operating on the plural sets of N data symbols to produce modulated data symbols corresponding to an invertible randomized spreading of the first stream of data symbols; and
> means to combine the modulated data symbols for transmission.

A100, col. 6:42-51. Claim 10 provides:

> 10. The transceiver of claim 1 further comprising:
> means for receiving a sequence of modulated data symbols, the modulated data symbols having been generated by invertible randomized spreading of a second stream of data symbols; and
> second computing means for operating on the sequence of modulated data symbols to produce an estimate of the second stream of data symbols.

A101, col. 7:32-40.[5]

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[5] As detailed further below (65-66) and contrary to the description of the patent set out in Wi-LAN's brief (at 9-14), the '802 patent does not refer to "orthogonal" pseudo-noise codes or discuss the so-called "peak to average problem."

The CDMA methods set out in Sasaki and the '802 patent made sense for the type of wireless communications popular in the 1990s. A requirement that "the converter produce an equal distribution" is an acceptable solution for a local area network where "bandwidth … can be squandered to simplify some other aspect of the design." A1071. So too, the "order in which the[] multiplications [which is to say, randomizing and combining] are done … matter[s]" for small cellular devices insofar as it "affects the number of multipliers … that are needed on the circuitry," which, in turn, requires a larger, more "power hungry" chip. A1034. As explained (at 60-62), this tends not to be a problem for LAN products. A772.

Wi-LAN Enters "The Licensing Business"

Wi-LAN asserts in its opening brief ("WOB"), at 5, that its initial wireless product "surpass[ed] the data transfer rates of [contemporaneous] wired Ethernet," A797. But regardless, all agree that in 2004 Wi-LAN's limited product sales "hit the wall." A865. Coupled with its "growing" expenses, *id.*, Wi-LAN lost money in 14 out of 16 quarters, A867, prompting a decision to "move the company to be a licensing company," A821; *accord* A865.

On February 1, 2006, Wi-LAN "exited the product business," A876, to "focus on … licensing," A821. Since then, Wi-LAN has filed 26 patent infringement suits against 40 separate defendants.[6]

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[6] *See, e.g.*, *Wi-LAN, Inc. v. Acer, Inc.*, No. 2:07-cv-00473 (E.D. Tex. Oct. 31, 2007); *Wi-LAN, Inc. v. Westell Techs., Inc.*, No. 2:07-cv-00474 (E.D. Tex. Nov. 1, 2007); *Wi-LAN, Inc. v. Research in Motion Corp.*, No. 2:08-cv-00247 (E.D. Tex. June 19, 2008); *Wi-LAN Inc. v. Conexant Sys., Inc.*, No. 2:09-cv-00300 (E.D. Tex. Oct. 1, 2009); *Wi-LAN Inc. v. LG Elecs., Inc.*, No. 1:10-cv-00432 (S.D.N.Y. Jan. 19, 2010); *Wi-LAN Inc. v. Calix, Inc.*, No. 2:10-cv-00117 (E.D. Tex. Apr. 1, 2010); *Wi-LAN Inc. v. Acer, Inc.*, No. 2:10-cv-00124 (E.D. Tex. Apr. 7, 2010); *Wi-LAN Inc. v. Alcatel-Lucent USA Inc.*, No. 6:10-cv-00521 (E.D. Tex. Oct. 5, 2010); *Wi-LAN Inc. v. Time Warner Cable, Inc.*, No. 6:10-cv-00616 (E.D. Tex. Nov. 19, 2010); *Wi-LAN Inc. v. HTC Corp.*, No. 2:11-cv-00068 (E.D. Tex. Feb. 2, 2011); *Wi-LAN Inc. v. Apple Inc.*, No. 2:12-cv-00600 (E.D. Tex. Sept. 1, 2011); *Wi-LAN Inc. v. Apple Inc.*, No. 6:11-cv-00453 (E.D. Tex. Sept. 1, 2011); *Communique Lab., Inc. v. Bomgar Corp.*, No. 1:12-cv-00003 (E.D. Va. Jan. 4, 2012); *Wi-LAN USA, Inc. v. Research in Motion Ltd.*, No. 1:12-cv-20232 (S.D. Fl. Jan. 20, 2012); *Wi-LAN USA, Inc. v. Alcatel-Lucent USA, Inc.*, No. 1:12-cv-23568 (S.D. Fl. Oct. 1, 2012); *Wi-LAN USA, Inc. v. Ericsson, Inc.*, No. 1:12-cv-23569 (S.D. Fl. Oct. 1, 2012); *Wi-LAN Inc. v. LG Elecs., Inc.*, No. 1:12-cv-23611 (S.D. Fl. Oct. 3, 2012); *Wi-LAN USA, Inc. v. Toshiba Corp.*, No. 1:12-cv-23744 (S.D. Fl. Oct. 15, 2012); *Wi-LAN Inc. v. Apple Inc.*, No. 6:12-cv-00920 (E.D. Tex. Dec. 6, 2012); *Wi-LAN Inc. v. Sierra Wireless Am., Inc.*, No. 6:12-cv-00921 (E.D. Tex. Dec. 6, 2012); *Wi-LAN USA, Inc. v. HTC Corp.*, No. 1:12-cv-24319 (S.D. Fl. Dec. 6, 2012); *Wi-LAN USA, Inc. v. Sierra Wireless Am., Inc.*, NO. 1:12-cv-24320 (S.D. Fl. Dec. 6, 2012); *Wi-LAN USA, Inc. v. Apple Inc.*, No. 1:12-cv-24318 (S.D. Fl. Dec. 6, 2012); *Wi-LAN USA, Inc. v. Research in Motion Ltd.*, No. 1:13-cv-24349 (S.D. Fl. Dec. 10, 2012); *Wi-LAN USA, Inc. v. Research in Motion Ltd.*, No. 1:13-cv-21662 (S.D. Fl. May 8, 2013); *WiLAN, Inc. v. Apple Inc.*, No. 3:14-cv-01507 (S.D. Cal. June 23, 2014).

Apple's Products

Among other products, Apple makes devices, like the iPhone and iPad, that use three different 3G (third generation) cell phone communication standards—the CDMA2000 standard, the EV-DO Rev. A standard, and the HSUPA standard—each of which operates differently from Wi-LAN's patented technique. The accused Apple devices use silicon chips created by Qualcomm. Because those chips were intended for use in cellular devices, Qualcomm designed—and Apple incorporated—a chip that, Wi-LAN concedes, WOB 61, practices neither the order of operations nor the even separation required by the patent. "[I]n the cellular field," as opposed to the LAN field, "two things are very precious: Bandwidth spectrum and battery." A1034. Accordingly, there is no dispute the asserted patent claims technology that is "more appropriate" for use in Wi-Fi or LAN, rather than cellular, devices. A1071, WOB 63-65 (arguing only against any suggestion that the patent cannot read on a cellular device).

District Court Proceedings

In 2007, Wi-LAN sued Apple and its Wi-Fi suppliers alleging infringement of the '802 patent as it relates to Apple's Wi-Fi products.

Compl., *Wi-LAN, Inc. v. Acer, Inc.*, No. 2-07-cv-00473, (E.D. Tex. Oct. 31, 2007), ECF 1 ("*Acer*"). That case settled when Apple's Wi-Fi suppliers took a license to the '802 patent and Wi-LAN dismissed its suit against Apple without prejudice. *Wi-LAN, Inc. v. Acer, Inc.,* 2-07-cv-00473, slip op. at 1 (E.D. Tex. Feb. 28, 2011), ECF 1118.

Nine months later, Wi-LAN filed suit the present suit against Apple and many other leading technology companies in the Eastern District of Texas, accusing Apple, Alcatel-Lucent, Dell, HP, HTC, Kyocera, Novatel, and Sierra Wireless of infringement of the same patent.[7] *See* A10,319-30. This time, Wi-LAN alleged that the '802 patent covered cellular (rather than LAN or Wi-Fi) technology. As to Apple, Wi-LAN alleged that claims 1 and 10 of the '802 patent are infringed by the iPhone and iPad products that utilize 3G cellular

[7] With the exception of Kyocera, who was severed from the case, A10,300-01, all the defendants other than Apple settled. *See* A10,302 (Dell), 10,304-05 (Alcatel-Lucent), 10,306-07 (HTC), 10,308-09 (Novatel), 10,310-11 (Sierra), and 10,312 (HP).

standards through chips developed by Qualcomm. A2, 417, 1430-39 (3G Apple iPad representative product).[8]

Wi-LAN's patent claims "a *converter* for *converting* the first stream of data symbols into plural sets of *N* data symbols each," and a "*first computing means*" for producing modulated data symbols corresponding to an invertible randomized spreading" of the data symbols. A100, col. 6:42-51 (emphasis added). The district court construed four terms relevant here: "converter," "converting," "N," and "first computing means." *Id.*

Converter. Apple proposed construing "converter" to mean a "serial-to-parallel device" because, as described above, the converter described in the patent separates the stream of serial data into N sets of parallel data symbols. Apple's proposed construction was different from the construction previously adopted by a different judge on the same court in the *Acer* case. There, the court ruled that a "converter" is "generally understood" to mean "a device that accepts data in one

[8] Although Wi-LAN's original complaint accused Apple of infringing both the '802 patent and the '222 patent, A10,319, 10,324, only the '802 patent was asserted against Apple at trial. *See* A829 (noting that "Apple is not accused of infringing" the '222 patent).

form … and changes it to another." A45 (discussing *Acer* at 40). Here, the court agreed with Apple that "Figures 1 and 4" "illustrate the converter 10 as a 'serial-to-parallel' device," but decided, "on balance," to follow the *Acer* construction and "not limit … 'converter' to the specific type of device illustrated in Figures 1 and 4." A46. As described below, the court, however, did require that the data symbols be converted to parallel in its construction of "N." *See infra* at 25.

Converting. The *Acer* court "did not address" the "converting" term, A47, and Wi-LAN argued that the "converting …" term need not be construed at all, A47, 49. The district court disagreed, observing a "fundamental dispute" regarding the term. A47. After reproducing Figures 1 and 4, the court agreed with Apple that "the disputed term should be construed to clarify and explain that the stream of data symbols is separated into multiple groups and that each group has N data symbols." *Id.* Accordingly, the court construed the "converting …" term to mean "separating the first data stream into multiple groups of data symbols such that each group has N data symbols." *Id.* Consistent with the court's decision not to construe "converter" as limited to the type of converter shown in Figures 1 and 4, the court

declined to adopt Apple's additional proposal "that each group must be separated into N individual data symbols." *Id.*

N. Wi-LAN and Apple disputed the construction of the term "N." A49. Wi-LAN proposed the construction of N as "the number of parallel data symbols." *Id.* As noted above, Apple had urged the court to include the "parallel" concept in the constructions of converter and converting. Under those constructions, Apple suggested that "N" just means "the number of chips per DSSS code." *Id.* Having rejected Apple's converter and converting constructions while recognizing that Figures 1 and 4 show conversion of a serial data stream into parallel data streams, the court accepted Wi-LAN's construction and ruled that, in the context of the claims, N referred to "the number of parallel data symbols" that are distributed across the output paths. A54-56.

First computing means. Based on the *Acer* court's construction, the parties agreed that the "first computing means" should be construed to mean "operating on the plural sets of N data symbols to produce modulated data symbols corresponding to an invertible randomized spreading of the first stream of data symbols." A73. The parties also agreed that the corresponding structure was "element 12 of Figures 1

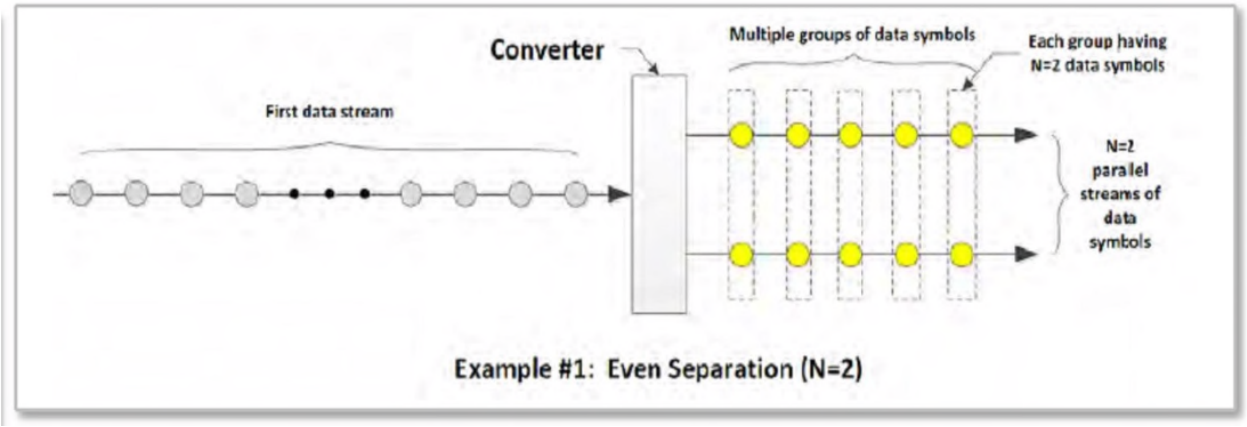
and 4, columns 2:6-10, 2:36-40, 2:58-62, 4:2-12 and 4:35-44 and equivalents thereof." *Id.* As explained below, at 32, after trial the district court changed its construction of this term to require the structure from Figure 8, which the patent refers to as a "randomizer transform," in order to uphold the validity of the '802 patent. A99, col. 3:12-14. This structure, which does not appear in Figures 1 or 4 and is not described in the above-referenced specification text cited in the agreed upon claim construction, specifically utilizes a complex randomizer to randomize the spread data symbols. *Id.*

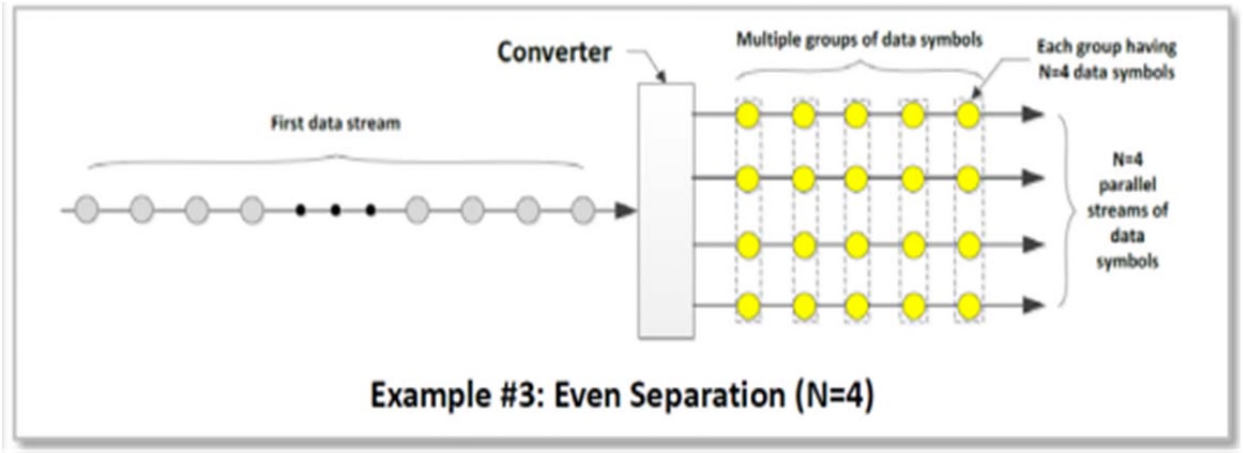
At trial, Apple's expert, Dr. Anthony Acampora, explained that Apple's devices do not infringe because (1) they do not evenly distribute a set of data symbols from a data stream across multiple data paths and (2) they do not randomize the data symbols before combining them.

For the first basis for non-infringement, Dr. Acampora used a series of charts to explain the court's construction to the jury, A1026-27. Dr. Acampora's charts (reproduced just below) visualize how the claimed system works. Each dot on the chart represents a "data symbol" carrying digital data that will be modulated and transmitted on the radio waves. The series of gray dots on the left represents a stream

of data symbols. The solid rectangular box in the center is a converter. The converter evenly distributes the stream of data symbols onto multiple separate output paths. To the right of the converter, the dashed rectangular boxes each reflect a single set or group of data symbols. Each horizontal series of yellow dots reflects a stream of data symbols after the stream has been separated. In this fashion, the CDMA transceiver takes a stream of data and splits it among multiple output paths. These paths lead to the "first computing means," which modulates each of the data symbols with different pseudo-noise codes at the same time.

Using these charts, Dr. Acampora displayed two examples of systems that satisfied the requirement that N refer to the number of output paths, one where N=2 (illustrating two output paths each with one data symbol) and another where N=4 (illustrating four output paths each with one data symbol):





A10,396; *see* A1027. The same charts also showed even distribution on each output path (i.e., each output path has the same number of yellow dots, representing data symbols).

Dr. Acampora explained that the cellular standards used by Apple contain *different* amounts of data on the different output paths, thus allowing voice data, video data, and other types of data to each be carried at a different optimal bandwidth. A1071-72. Accordingly, the

accused devices do not convert the "stream of data symbols into plural sets" containing N parallel "data symbols." A99, col. 4:1-2; A1027-29.

As to the second basis for non-infringement, Dr. Acampora also explained that the accused products do not infringe because they do not include the claimed "means to combine." As Dr. Acampora explained, the language of the claim requires that the "means to combine" will combine the randomized modulated data symbols produced by the "first computing means." A1026. The means to combine must therefore combine data symbols that have already been randomized. *Id.* Wi-LAN concedes that the Apple devices do not combine randomized data symbols, which is why, at trial, Wi-LAN relied on the doctrine of equivalents to argue infringement. WOB 58-59; A759-61. But Apple's expert, Dr. Acampora, explained that a system that randomizes *after* combining is not equivalent to one that randomizes *before* combining because randomizing after combining results in a smaller and more energy efficient design. A1034.

Dr. Acampora also explained why the '802 patent is invalid in light of the prior art. He described the Sasaki reference discussed above. A1035-38. Similarly, he explained that the Gilhousen reference,

a patent filed by Qualcomm two years prior to the '802 patent, also disclosed each of the claim limitations as originally construed by the district court at the *Markman* hearing. A1038-40. He also described the Zehavi patent, which discloses a system that, like Apple's products, randomizes the data symbols *after* they are combined (rather than before they are combined) and testified that Zehavi is not the same or equivalent to the '802 patent. A1041-42.

The district court instructed the jury that it must apply the court's claim constructions in determining issues of infringement and invalidity, and provided the jurors with the claim constructions. A377.

After only a few hours of deliberation, the jury returned a verdict completely in favor of Apple, finding that Apple's accused products do not infringe and finding the '802 patent invalid as anticipated by the prior art. A362, 364.

Wi-LAN moved for judgment as a matter of law that the accused products infringe the '802 patent and that the patent is valid. A2, 1197. The district court denied Wi-LAN's motion with respect to infringement and granted it regarding validity. A16.

As to non-infringement, the court ruled that, based on the evidence presented at trial, "a reasonable jury could have found (and did find) non-infringement under the Court's claim constructions," A11 and denied Wi-LAN's motion for JMOL as to infringement, A14. Indeed, because none of the "three standards accused of infringement … perform even separation," the court agreed with the jury that there was no infringement. A11-12. The court rejected Wi-LAN's argument that Apple's evidence and the jury's verdict were inconsistent with the court's claim construction, concluding instead that the jury's non-infringement verdict was based on substantial evidence: Although "the number of groups of N data symbols does not have to equal N, … each group must contain the same N number of data symbols." A12.

The court also rejected Wi-LAN's argument that the "means to combine" need not combine randomized data symbols. A4. The "means to combine" combines "the modulated data symbols." A100, col. 6:49-51. The court held that the claim language for the "first computing means"—"to produce modulated data symbols *corresponding to an invertible randomized spreading*"—requires that the randomization occur *before* combining. A14 (emphasis added). As Dr. Acampora

testified, and as the court agreed, the "antecedent basis of '*the* modulated data symbols' referenced in the 'means to combine' limitation of claim 1" requires those data symbols to have been modulated and randomized so they "correspond[] to an invertible randomized spreading," as the "first computing means" element requires. A13.

As to the jury's invalidity ruling, however, the court reversed. In doing so, the court re-construed the term "first computing means" to include the requirement of a complex multiplier, something the court found absent in the prior art. The court acknowledged that its construction of the "first computing means" element did not "explicitly identify a complex multiplier as a structure corresponding to the means-plus-function term." A7. Yet the court modified the construction contrary to the earlier agreement of the parties during the *Markman* proceedings, so that the complex multiplier is now a required element of the corresponding structure. A10.

Wi-LAN also moved for a new trial, complaining that the jury was confused by Apple's characterization of the '802 patent as a "LAN patent." *See* A15, WOB 63. The district court rejected this argument because Wi-LAN had waived it by "fail[ing] to object" at trial. A16.

SUMMARY OF THE ARGUMENT

I & II. The jury had ample evidence to conclude that Apple's 3G cellular devices do not infringe the '802 patent.

First, the '802 patent claims a device that separates a stream of data symbols into multiple evenly distributed sets of data symbols. The claimed transceiver includes a "converter for converting the first stream of data symbols into plural sets of *N* data symbols each." A100, col. 6:42-51 (emphasis added). The patent and district court's construction (as urged by Wi-LAN) dictate that N is the "number of parallel data symbols." A49-56. When the data stream enters the converter, the converter takes N data symbols from the stream and evenly distributes the N data symbols among N separate paths as "parallel data symbols." A49-56.

Wi-LAN does not dispute that Apple offered substantial evidence that the accused devices by contrast separate data symbols *unevenly* among data output paths. WOB 30, 39. Indeed, Apple showed at trial that each of the three accused cellular standards distribute the sets of data along paths that contain *different* amounts of data; they do not

convert the "stream of data symbols into plural sets" of N parallel "data symbols." A99, col. 4:1-2; A1027-29.

Wi-LAN's focus on the district court's construction of the "converting …" claim term, WOB 46-47, misses the point. It is the district court's construction of "N"—not just the construction of "converting …"—that requires the claimed converter to separate groups of N data symbols onto N parallel output paths. Wi-LAN's brief is devoid of any mention of the construction of "N."

In any event, this Court reviews claim construction issues *de novo*. The correct construction of the claim language is that the stream of data symbols is converted to multiple streams carrying equal amounts of data, and there is no dispute that the accused devices do not operate in that manner.

Second, the '802 patent claims a device that modulates and randomizes *before* the data sets are recombined. Claims require a specific order if "grammar, logic, the specification or the prosecution history require the steps to be performed sequentially." *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1309 (Fed. Cir. 2014). Here, claim 1 requires a "first computing means" that "produce[s]" "modulated" and

"randomized" data and a "means to combine" the data for transmission. The "first computing means" randomizes and *then* the "means to combine" combines. This order of events is also apparent from the '802 patent's figures. Neither the specification nor any of the figures make any mention of a system where randomization occurs after combination.

There is no dispute that Apple's 3G devices combine the output channels *prior* to performing any randomizing. WOB 27. In cellular devices, space and mobility are at a premium, so the various parts must be small and efficient. A1005-06. Thus, unlike the claims in the '802 patent, the Qualcomm chip incorporated in the accused Apple products combines the modulated data *before* randomization because doing so saves power. As Apple's expert explained, "the order in which the[] multiplications are done … matter[s] because it … affects the number of multipliers … that are needed on the circuitry," which, in turn, requires a larger, more "power-hungry" chip. A1034.

Wi-LAN attempts an end-run around this result by latching on to the doctrine of equivalents. WOB 59-61. The doctrine of equivalents is a question of fact for the jury. *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 38 (1997). Here, the jury has already

considered—and rejected—the factual arguments Wi-LAN advances in its appellate brief regarding the significance of combining after—rather than before—randomization. Apple's expert explained how the differing order of operations caused the accused products to work in a more efficient manner, leading to less consumption of silicon space and battery power.

Accordingly, for two separate and independent reasons, Wi-LAN has not shown that the jury's factual finding was "strongly and overwhelmingly" disproven by "the evidence," and thus the Court should not disturb the jury's verdict of non-infringement. *Versata Software, Inc. v. SAP Am., Inc.*, 717 F.3d 1255, 1261 (Fed. Cir. 2013).

III. The district court erred in reversing the jury's finding that the '802 patent is invalid. The district court's pre-trial construction of "first computing means" was, pursuant to an agreement by Apple and Wi-LAN, that the term "first computing means" referred to "element 12 and Figures 1 and 4, columns 2:6-10, 2:36-40, 2:58-62, 4:2-12 and 4:35-44." A73. Based on this construction, Apple's expert explained to the jury that two prior art references anticipated every element of claim

1 of the '802 patent, and the jury found the patent invalid as anticipated.

The district court overturned the jury's invalidity verdict because Apple did not provide evidence that the prior art disclosed a "complex multiplier" as part of the claimed "first computing means." A10. But in so doing, the court acknowledged that its "identification of the structure for 'first computing means' [at the *Markman* stage] does not specifically provide for a complex multiplier component." A9. Post-trial "is too late … to argue for or adopt a new and more detailed interpretation of the claim language and test the jury verdict by that new and more detailed interpretation." *Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1320 (Fed. Cir. 2003). The district court's belated claim construction is also wrong on the merits.

IV. The district court properly denied Wi-LAN a new trial. Wi-LAN complains that Apple's witness testimony and opening and closing statements "urged the jury" to "limit[] the scope of the asserted claims … to LAN (Wi-Fi) transceivers" and "exclude[] cellular transceivers." WOB 61; 63 ("the '802 patent was not a cellular patent"). But, as the district court explained, Wi-LAN "did not object to these

questions during the course of the trial," and thus Wi-LAN has "waived any objection on the issue." A15. Moreover, Apple's argument was not that the '802 patent *could not* be read on a cellular system but, rather, that Qualcomm *would not* have implemented technology from the '802 patent in its cellular chip, A1170, because that technology is "more appropriate" for LAN, A1071, which served to confirm that the accused devices do not infringe. Apple's expert, witnesses and attorneys all accurately describe the patent asserted here.

STANDARD OF REVIEW

This Court reviews denials of JMOL under regional circuit law. *Versata Software*, 717 F.3d at 1261. The Fifth Circuit applies an "especially deferential" standard of review "with respect to the jury verdict," reversing the jury only if "the evidence points so strongly and overwhelmingly in favor of one party that the court believes that reasonable jurors could not arrive at any contrary conclusion.'" *Id.* (citations omitted). The jury's determination of infringement is a question of fact, which this Court reviews for substantial evidence. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1309-10 (Fed. Cir. 2009).

Whether the jury properly found the patent invalid as anticipated based on the original claim construction is a question of fact that is reviewed for substantial evidence. *JumpSport, Inc. v. Jumpking, Inc.*, 191 F. App'x 926, 931 (Fed. Cir. 2006). Whether the district court erred by re-construing the claims in its invalidity analysis is a matter of law reviewed without deference. *World Class Tech. Corp. v. Ormco Corp.*, 769 F.3d 1120, 1123 (Fed. Cir. 2014).

The Federal Circuit reviews a district court's decision on a motion for a new trial under regional circuit law. *SynQor, Inc. v. Artesyn Techs., Inc.*, 709 F.3d 1365, 1383 (Fed. Cir. 2013). "In the Fifth Circuit, a court may grant a new trial if it finds the trial was unfair or prejudicial error was committed." *Id.* (citing *Smith v. Transworld Drilling Co.*, 773 F.2d 610, 612-13 (5th Cir. 1985)). "'The decision to grant or deny a motion for a new trial is within the discretion of the trial court and will not be disturbed absent an abuse of discretion or a misapprehension of the law.'" *Synqor*, 709 F.3d at 1383 (quoting *Prytania Park Hotel, Ltd. v. Gen. Star Indem. Co.*, 179 F.3d 169, 173 (5th Cir. 1999)). "'There is no such abuse of discretion unless there is a complete absence of evidence to support the verdict.'" *SSL Servs., LLC*

v. Citrix Sys., Inc., 769 F.3d 1073, 1082 (Fed. Cir. 2014) (quoting *Industrias Magromer Cueros y Pieles S.A. v. La. Bayou Furs Inc.*, 293 F.3d 912, 924 (5th Cir. 2002)).

ARGUMENT

I. The Jury Properly Found No Infringement Because The Accused Devices Do Not Convert A Data Stream Into Multiple Evenly Distributed Sets Of Data

A. The '802 Patent Claims A Transceiver That Converts A Stream Of Data Into Multiple Evenly Distributed Sets Of Data

The '802 patent teaches converting a stream of data symbols into multiple separate sets of data symbols where each set contains the *same* amount of data symbols *evenly* distributed among separate output paths. This requirement is evident in the language of the claims and the specification.

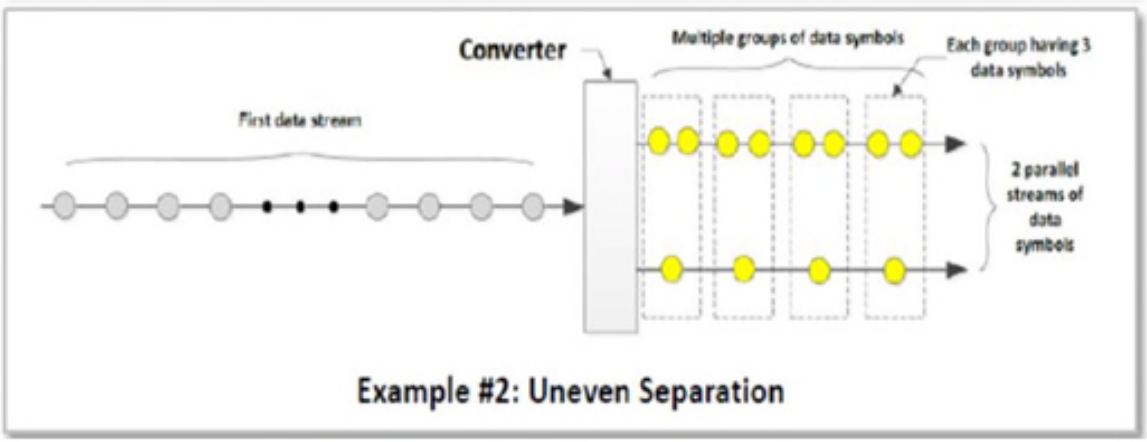
As explained above, at 12-15, the claimed transceiver includes a "converter for converting the first stream of data symbols into plural sets of N data symbols each." A100, col. 6:42-51. The stream of data symbols consists of "plural sets of N data symbols each" referred to above as sections of the data stream. Each section of the data stream has N data symbols. When each section of the data stream enters the converter, the converter converts the N data symbols into a set of

symbols which the converter then evenly distributes among N separate output paths. *See* A78 (Fig. 1); A81 (Fig. 4). Each of the paths carries one data symbol from any given "plural set." *See* A78 (Fig. 1); A81 (Fig. 4). As demonstrated in Figure 1, for example, the section of the data stream labeled Sym(k) is converted into a set of data symbols, where each symbol—specifically, sym(1,k), sym(2,k) all the way through sym(N,k)—is distributed along its own output path. A78.

As also explained above, at 12-15, 23-25, the '802 patent's specification makes clear that the converter must place each of the data symbols on its own output path. The patent explains that there is a modulator (and a spreading code) simultaneously operating on each of the N data symbols ("each ith data symbol"). A99, col. 4:7-12. This is only possible if each data symbol is on its own data path. The patent defines its invention as "a modulation scheme that assigns up to N DSSS codes to an individual user." A75 (Abstract). The referenced N DSSS codes correlate with the N data symbols per set, allowing each data symbol to be spread simultaneously by its own DSSS code. *See* A78 (Fig. 1).

Adhering to the *Acer* construction of "converter," the district court allowed that the term "converter" may not dictate use of a serial-to-parallel converter. A44-46. But, without expressly disagreeing with another judge on the same court, the district court effectively reached the same result by then construing the term "N" as "the number of *parallel* data symbols." A49-56 (emphasis added). By this construction of N, the district court assured that the patent would only claim the conversion of data into separate sets containing N data symbols distributed evenly across N parallel paths where each path contains the same amount of data.

On appeal, Wi-LAN complains that Apple "resurrected," WOB 14, a rejected "individual separation" claim construction at trial, *id.* at 44. Specifically, Wi-LAN points to Dr. Acampora's figures and testimony that explain when a system contains groups of N parallel data symbols and when it does not. WOB 39-48. For example, one of Dr. Acampora's examples shows two output paths where the symbols are *not* evenly distributed:



A10,396. As Dr. Acampora explained, this example does not comply '802 patent's requirement (as correctly construed by the district court) that the converter separates the data stream into groups of evenly distributed N data symbols because the top output path has two symbols in each set while the bottom output path has only one. A1027. Thus, the limitation "N" is not satisfied because "the number of *parallel* data symbols" differs. A49-56 (emphasis added).

Far from being improper, Dr. Acampora's examples simply explained the district court's construction to the jury. *See Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1361-63 (Fed. Cir. 2008) (explaining that issues of infringement and validity are "analyzed in great part from the perspective of a person of ordinary skill in the art, and testimony explaining the technical evidence from that perspective may be of great utility to the factfinder").

Wi-LAN's opposition to these figures is based entirely on the district court's claim construction order in which the court stated, with regard to the construction of the term "converting," that the "converting" limitation does not require "each group [to] be separated into N individual data symbols." A49. But the district court also went on to explain that the converter must "separate[e] the first data stream into multiple groups of data symbols such that each group has N data symbols" and construed N (at Wi-LAN's urging) to be "the number of parallel data symbols," A49-56. By construing N to refer to "the number of parallel data symbols," the court required that all the symbols in a group of N symbols be parallel data symbols, which means that each symbol in a set of N data symbols must occupy its own separate output path.

Wi-LAN's arguments to the district court also confirm that the '802 patent's converter requires "parallel data symbols." Below, Wi-LAN argued for a construction that the N data symbols must be parallel, urging that "N" be construed as "the number of parallel data symbols." A49. As just explained (and never disputed by Wi-LAN because it was Wi-LAN's own proposed construction), the only way a set

of N data symbols can contain N parallel data symbols is if each parallel stream contains equal amounts of data. That is all Apple's expert explained to the jury.

Wi-LAN's focus on the court's construction of the "converting …" claim term, WOB 46-47, misses the point. As Dr. Acampora explained, it is the district court's construction of "N"—not just the construction of "converting," which includes the term "N"—that required the claimed converter to separate data stream sections of N data symbols onto N parallel output paths. A1026-28. Yet, tellingly, Wi-LAN's brief is devoid of any mention of the construction of "N." Nor does Wi-LAN explain how the patented system can have N "parallel data symbols"—as required by the court's proper construction of "N"—without placing an equal amount of data symbols on each parallel output path.

Wi-LAN's suggestion, WOB 47, that the jury was not instructed to apply the term "N" is wrong. The district court provided the jury with all of its constructions, including the construction of "N" that referred to the number of parallel data symbols. A377; A56. With the assistance of Apple's expert's testimony, the jury had numerous proper bases to understand this limitation and apply it to the accused products. A377.

In support of its allegation that Apple "reconstrued" the claims by arguing the construction of N to the jury, Wi-LAN repeatedly cites *Moba, B.V. v. Diamond Automation*, 325 F.3d 1306 (Fed. Cir. 2003) (cited at WOB 36, 38-39, 47-48). But *Moba* is inapposite. In *Moba*, this Court reversed a denial of JMOL for infringement because the lower court had failed to direct the jury regarding a particular claim limitation, thereby allowing the jury to determine whether the claim included the limitation. *Id*. at 1313. This Court explained that the lack of direction to the jury "fundamentally altered the verdict," as the record included "no alternative basis upon which a reasonable jury could find that the [defendant] does not infringe." *Id*. at 1313-14.

The facts here are far different. Unlike in *Moba*, the district court did not permit the jury to construe the terms. A377. Contrary to the *Moba* defendant, Apple relied specifically on the court's construction of "converting" and "N," which were provided by the court in its claim construction order, and provided to the jury. *Id*. And, as discussed below (in § II), and unlike in *Moba*, the jury had an alternative basis to reasonably find that Apple did not infringe.

Wi-LAN's reliance on *Hewlett-Packard Co. v. Mustek Systems, Inc.*, 340 F.3d 1314 (Fed. Cir. 2003), is similarly misplaced. In *Hewlett-Packard*, a district court decided an issue of claim construction after trial, and granted JMOL based on a newly adopted construction that was never before the jury. *Id.* at 1319-1321. This Court reversed because JMOL motions must be determined under the constructions with which the jury was instructed. *Id.* at 1320. Here, unlike in *Hewlett-Packard*, the district court did not re-construe any terms to deny Wi-LAN's JMOL motion. (Though, the court did wrongly re-construe "first computing means" to grant Wi-LAN's JMOL motion and reverse the jury's verdict as to invalidity. *Infra* § III.) As to Wi-LAN's motion regarding non-infringement, the district court simply acknowledged that Apple had offered substantial evidence of non-infringement under the court's previously adopted constructions. A12.

In any event, this Court reviews claim construction issues de novo. The correct construction of the claim language is that the stream of data is converted to multiple sets carrying equal amounts of data along each parallel output path. Wi-LAN does not provide any explanation as to why the claims should broadly cover systems beyond those that

perform such a conversion. *See Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456-1458 (Fed. Cir. 1998) (claim construction is reviewed de novo).

B. The Accused Devices Do Not Convert A Data Stream Into Multiple Evenly Distributed Sets Of Data

Wi-LAN does not dispute that Apple offered substantial evidence that the accused devices separate data symbols unevenly among data output paths. WOB 26 n.11. As Wi-LAN writes, "there is no relevant dispute concerning the structure or operation of the representative accused devices." WOB 39.

Indeed, Apple showed at trial that all three accused cellular standards use sets of data where the data symbols are not evenly distributed among the output paths. A1027-29. In the CDMA2000 devices, the data output paths are called the Reverse Fundamental Channel (R-FCH), which is used for voice data transmissions, and the Reverse Supplemental Channel (R-SCH), which is a variable-rate transmission channel typically reserved for high-speed data transmissions (such as streaming videos and music). A1027. As Dr. Acampora explained, the R-FCH and R-SCH channels do not transmit the same number of data symbols. *Id.*

The EV-DO Rev. A standard also divides the data symbols among two data paths, and the two paths contain a *different number* of data symbols. A1028-29.

So too, the HSUPA ("High Speed Uplink Packet Access") standard has two data paths that output the same amount of data but use spreading codes of different lengths, which indicates that the two data paths do not contain equal amounts of data before being spread by the spreading codes. A1029.[9]

Accordingly, the three accused standards and the devices that use those standards do not infringe claim 1. In addition, because claim 10 depends on claim 1, and because Apple's products do not infringe claim 1, they also do not infringe claim 10. 35 U.S.C. §112, ¶ 4 (2010).

That the '802 patent is "more appropriate" for use in LAN technology (while the accused products are used in the cellular context) confirms all this. The '802 patent's even separation requirement would

[9] If the paths had the same amount of data symbols, spreading them with codes of differing length would result in differing amounts of data on the output paths (e.g., 1 symbol spread by a 3 chip code results in 3 chips, whereas 1 symbol spread by a 5 chip code results in 5 chips). Because the paths end up carrying the same amount of data despite the use of different length spreading codes, each output path must not have contained the same amount of data symbols.

waste bandwidth in a cellular network. A1071. As Apple's expert explained, the '802 patent was written for use in ISM bands, which are typically used by LAN networks because bandwidth is free. *Id.*; A718. However, each cellular network (e.g., AT&T, Verizon, Sprint, etc.) pays "hundreds of millions of dollars" for its own specific frequency band, A718, and therefore are careful not to waste any of their "precious" bandwidth, A1071. Cellular networks thus "very carefully allocate[] [bandwidth] among [the] many … users … within the footprint of one … cell tower[]," *id.*, to avoid "squander[ing]" bandwidth. A1022. This requires "an *unequal* partitioning of the resources" to accommodate the various needs of cellular users (i.e., voice, video, photo, email, etc.). A1071 (emphasis added); *see* A1022, 1170.

In contrast, "in a [LAN] environment, … bandwidth … can be squandered to simplify some other aspect of the design or the operation of the wireless local area network" because that bandwidth is free, A1071, and, typically, "only a handful of clients" are using any given wireless router, A1022. It costs nothing to "squander[] the spectrum in a wireless setting," so it is unnecessary to "carefully dole[] out … segments" of the spectrum tailored specifically to a user's immediate

need. *Id.* A requirement that "the converter produce an equal distribution" is, therefore, an acceptable solution for a local area network but is "*not* … supportive of the needs of cellular." A1071 (emphasis added).

In sum, in each of the three cellular standards, the uneven paths demonstrate that the accused standards do not create plural sets of N parallel data symbols. Accordingly, the jury reasonably concluded the devices do not infringe. "A jury's resolution of evidentiary conflicts to establish the facts is the essence of its role in a jury trial." *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 765 (Fed. Cir. 1988)*; accord Agrizap, Inc. v. Woodstream Corp.*, 520 F.3d 1337, 1342-43 (Fed. Cir. 2008) ("according due deference to the jury … in its role as the factfinder."). Indeed, because substantial evidence supports the jury's verdict and Wi-LAN has done nothing to show that the jury's factual finding was "so strongly and overwhelmingly" disproven by "the evidence," this Court should not disturb the jury's verdict of non-infringement. *Versata Software*, 717 F.3d at 1261.

II. The Jury Correctly Found No Infringement Because The Accused Devices Do Not Randomize The Data Symbols Before The Symbols Are Combined

The '802 patent claims a "first computing means for operating on the plural sets of N data symbols to produce modulated data symbols corresponding to an invertible randomized spreading of the first stream of data symbols." A100, col. 6:46-49. The patent then requires a "means to combine the modulated data symbols for transmission." *Id.*, col. 6:50-51. The claim, as written, requires the data symbols to be modulated and randomized *before* they are combined. The jury correctly concluded that is not how Apple's devices work.

A. The '802 Patent Requires That Data Symbols Are Randomized Before They Are Combined

Claims require a specific order if "grammar, logic, the specification or the prosecution history require the steps to be performed sequentially." *Apple Inc. v. Motorola, Inc.*, 757 F.3d at 1309; *see also Loral Fairchild Corp. v. Sony Corp.*, 181 F.3d 1313, 1321 (Fed. Cir. 1999) (holding that the claim language required the steps be performed in written order because the second step required the prior performance of first step); *Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc.*, 152 F.3d 1368, 1375-76 (Fed. Cir. 1998) (holding that steps of claim

must be performed in written order because subsequent steps referred to something logically indicating the prior step had been performed).

Here, claim 1 requires:

> A transceiver for transmitting a first stream of data symbols, the transceiver comprising:
> a converter for converting the first stream of data symbols into plural sets of N data symbols each;
> **first computing means** for operating on the plural sets of N data symbols **to produce modulated data symbols corresponding to an invertible randomized spreading** of the first stream of data symbols; and
> **means to combine the modulated data symbols** for transmission.

A100, col. 6:42-51 (emphasis added). As the district court noted, Dr. Acampora "was entitled to give his opinion that … [the] modulated data symbols must be spread and randomized before being combined," an opinion that "did not contradict the Court's claim construction." A14.

The language and placement of the "means to combine" element confirms that the claim requires combining after randomization. The means to combine specifically refers to "*the* modulated data symbols." A100, col. 6:50-51. The phrase "*the* modulated data symbols" in the means to combine limitation is a reference to the earlier-mentioned

"modulated data symbols corresponding to an invertible randomized spreading" contained in the immediately preceding "first computing means" limitation. A100, col. 6:47-48. Courts call a reference from a specific, definite reference ("*the* modulated data symbols") to an earlier indefinite reference in the same claim (simply "modulated data symbols") an "antecedent basis." A13; *accord Motorola Mobility LLC v. Int'l Trade Comm'n*, 553 F. App'x 971, 975 (Fed. Cir. 2014) (antecedent basis for "the change" is "a change in accessibility" language); *NTP, Inc. v. Research In Motion, Ltd.*, 418 F.3d 1282, 1306 (Fed. Cir. 2005) (construing claim term employing definite article "the" as requiring an antecedent basis (discussing *Warner-Lambert Co. v. Apotex Corp.*, 316 F.3d 1348, 1356 (Fed. Cir. 2003)); *Predicate Logic, Inc. v. Distributive Software, Inc.*, 544 F.3d 1298, 1305 (Fed. Cir. 2008) (applying antecedent basis analysis in claim construction). Here, the "antecedent basis," A13, for the term "the modulated data symbols" is "modulated data symbols corresponding to an invertible randomized spreading." A100, col. 6:46-51. The specific modulated data symbols referred to as "*the* modulated data symbols" do not exist until they are "produce[d]"

when the first computing means spreads and randomizes the plural sets of data. *Id.*

Put another way, the "first computing means" modulates and randomizes and then the "means to combine" combines. This is so because the "first computing means" must "produce modulated data symbols corresponding to an *invertible randomized spreading*." The claim language requires that the "first computing means" perform this randomization.

This order of events is also apparent from the direction of the arrows in the '802 patent's figures. Figure 1 of the '802 patent depicts the data stream being first divided by the converter **10**, then modulated and randomized by the first computing means **12**, then combined by the means to combine **14**.

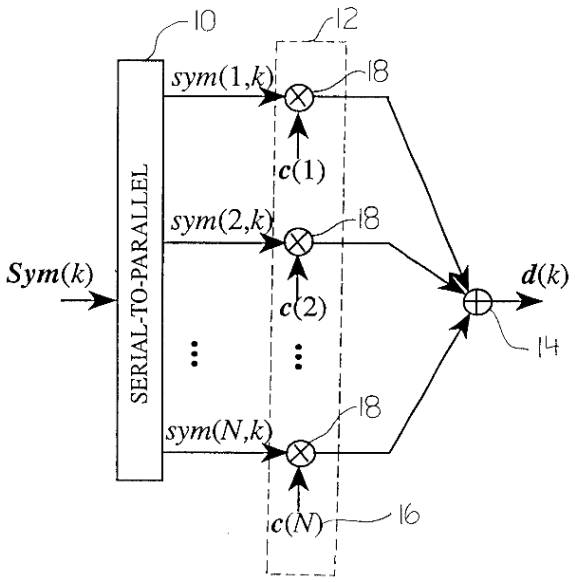


FIGURE 1

A78 (Fig. 1).

Similarly, Figure 4 of the '802 patent shows the same elements acting in the same order:

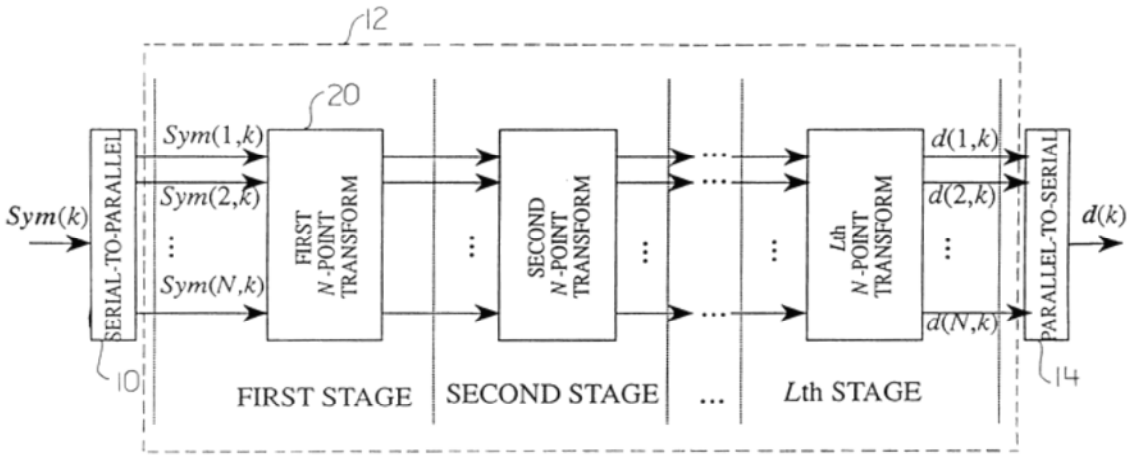


FIGURE 4

A81 (Fig. 4). Figure 4 displays transforms within the first computing means, one of which, according to the specification, may be the

"randomizer transform" responsible for creating the claimed "invertible randomized spreading" before the data symbols are combined. A99-100, col. 4:66-5:6. Thus, the data symbols are randomized in the "first computing means 12" prior to being combined by the "means to combine 14." A81. Notably, neither the specification nor any of the figures make any mention of a system where randomization occurs *after* combining.

Wi-LAN's argument that the "means to combine" may combine the symbols *before* they are randomized by the "first computing means" is meritless. WOB 52. In its attack on the jury's finding of invalidity, Wi-LAN argued (and continues to argue, WOB 10-11) that a "complex multiplier" is contained in the "first computing means." A7. A complex multiplier is used to randomize the data. A85 (Fig. 8). If the "first computing means" must include a randomizing element to avoid invalidity, Wi-LAN cannot at the same time argue that the "first computing means" does not randomize. *New Hampshire v. Maine*, 532 U.S. 742, 755 (2001) (applying doctrine of judicial estoppel when party took position inconsistent with prior position from which it benefited); *accord Key Pharms. v. Hercon Labs. Corp.*, 161 F.3d 709, 713-17 (Fed. Cir. 1998) (judicial estoppel bars a patentee from opposing a claim

construction that it successfully urged below); *accord Transclean Corp. v. Jiffy Lube Int'l, Inc.*, 474 F.3d 1298, 1307 (Fed. Cir. 2007).

Moreover, if Wi-LAN's belated argument to eliminate the timing requirement of randomization is accepted, then, as discussed below (at 65-66 n.11), the '802 patent is invalid in view of the Zehavi prior art presented at trial. A1041-43.

Nor does the district court's claim construction of "modulated data symbols" support Wi-LAN's argument (WOB 51) that claim 1 encompasses systems that combine before randomizing. In construing the term "modulated data symbols," which appears in the first half of the "first computing means" construction, the district court did not require a "randomization" requirement. A62. This was so because randomization was already expressly required by the "invertible randomized spreading" language elsewhere in the "first computing means" limitation. As the court explained:

> [R]andomization is a desirable feature that is addressed by other claim language, such as the term 'invertible randomized spreading,' which appears in Claim 1 and is discussed … above. Randomization therefore should not be imported into the term 'Modulated data symbols.'

Id. Accordingly, the district court recognized that while not all "modulated data symbols" need to be randomized, "modulated data symbols corresponding to an invertible randomized spreading" in the "first computing means" do, as must "the modulated data symbols" combined by the means to combine. A14. The district court reaffirmed the express language of the "first computing means" limitation when it properly rejected Wi-LAN's JMOL, explaining "[t]he interrelatedness of the terms within claim 1 was the reason the Court concluded that randomization should not be imported into the term 'modulated data symbols.'" A13-14 (internal quotations omitted). Thus, by the time the "means to combine" combines "the modulated data symbols," those data symbols have been modulated and randomized by the "first computing means."

Wi-LAN argues that the means-plus-function form of claim 1 establishes that there is no required order of operations in the claim. WOB 51. However, 35 U.S.C. § 112 ¶ 6 (2010) provides that an element "may be expressed as a means or step for performing a specified function" but "such [a] claim shall be construed to cover the corresponding structure, material, or acts described in the

specification." Here, the "first computing means" "produc[es] modulated data symbols corresponding to an invertible randomized spreading." A73. Wi-LAN cannot remove the randomizing function from the structure of the "first computing means" structure.

Wi-LAN's suggestion that dependent claim 4 requires a rewriting of claim 1 is also incorrect. WOB 54-55. Claim 4 depends on claim 1, and expressly requires the "transceiver of claim 1." A101, col. 7:1. Thus, claim 4 necessarily incorporates the claimed means and functions of claim 1. The fact that claim 4 adds an additional requirement that the "first computing means" comprise an additional means does nothing to refute claim 1's required order.

B. The Accused Devices Do Not Randomize Data Before Combining And Are Not Equivalent To Devices That Do

All agree that the accused devices combine the data *prior* to performing any pseudo-randomizing. WOB 27; A837. This is so because cellular developers, like Qualcomm, are very concerned with conserving power. A1034. In cellular devices, space and mobility are at a premium, so the various parts must be small and efficient. A1005-06. "[A]nything you do to reduce the power drain is useful." A1034. So,

unlike the claims in the '802 patent, the Qualcomm chip incorporated in the accused Apple products randomizes the data symbols *after* they have been combined and, in doing so, saves power. *Id.*; *see* A1076 (explaining that it is preferable to randomize after combining because "the more chips there are, the slower the data rate for that data.").

By randomizing the data symbols before combining, the patented technology must perform the same process multiple times (one for each output path), which burns considerably more power than combining the data symbols first and then performing the randomization process just once. As Apple's expert explained, "the order in which the[] multiplications are done … matter[s] because it … affects the number of multipliers … that are needed on the circuitry," which, in turn, requires a larger, more "power-hungry" chip. A1034. For Wi-Fi or LAN products, the order of operations is less of a concern because a bigger, less mobile product can have a larger battery or be used while plugged into a power source. A772. But for untethered mobile users, it is essential to keep power consumption to an absolute minimum. A1072.

In short, under the proper claim construction the jury's non-infringement verdict is correct as to both independent claim 1 and

dependent claim 10 and easily withstands this Court's deferential review.

Wi-LAN attempts an end-run around this result by latching on to the doctrine of equivalents. Equivalency is a question of fact for the jury. *Warner-Jenkinson*, 520 U.S. at 38. "Infringement under the doctrine of equivalents may be found when the accused device contains an insubstantial change from the claimed invention." *Tip Sys., LLC v. Phillips & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1376 (Fed. Cir. 2008) (quotation marks omitted). Here, the jury has already considered—and rejected—the factual arguments Wi-LAN advances in its appellate brief regarding whether the difference in the order of operation between the patent and the accused device is substantial. A759-61. The jury credited Apple's expert's testimony, which explained how the different order of operations caused the accused products to work in a more efficient manner, leading to less consumption of silicon space and battery power. A1034. The order of operation claimed in the patent, by contrast, makes sense in the context of Wi-Fi technology where silicon space and battery power are not nearly at the premium that they are with cellular technologies.

Moreover, "[t]he essential inquiry" when considering alleged equivalency infringement "is whether 'the accused product … contain[s] elements identical or equivalent to *each claimed element* of the patented invention.'" *Tip Sys.*, 529 F.3d at 1376-77 (emphasis added, brackets omitted) (quoting *Warner-Jenkinson*, 520 U.S. at 40)). Accordingly, Wi-LAN bears the burden of proving equivalence "on a limitation-by-limitation basis, as opposed to from the perspective of the invention as a whole." *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1358 (Fed. Cir. 2005). Wi-LAN cannot overcome the jury's verdict and demonstrate limitation-by-limitation equivalence because, as Apple's expert explained, the accused devices function in a substantially different way than the claimed invention. A1034.

Still, Wi-LAN argues that it would not be difficult to re-design the accused devices to infringe the '802 patent. WOB 59-61. Even if that were so, the doctrine of equivalents does not extend to equivalents of the claimed invention that were foreseeable at the time of invention: "[A]n equivalent is foreseeable if the equivalent was generally known to those skilled in the art at the time of [invention] …." *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 493 F.3d 1368, 1380 (Fed.

Cir. 2007). As Apple showed at trial through the Zehavi patent, systems that performed combination before randomization were well known in the prior art. A1041-42.

Wi-LAN had ample opportunity, and in fact did, vigorously cross examine Apple's expert on whether the technology in Apple's products was equivalent to the '802 patent. Indeed, during cross, Wi-LAN elicited the testimony it relies upon now, that each multiplier would require 10 additional transistors, and based on a system where N equals 2, there would be a supposedly minimal 20-transistor difference were the accused devices re-designed to infringe. A1053-54. Nevertheless, the jury found in favor of Apple after hearing this evidence, likely relying upon the fact that the accused devices would have superior energy efficiency capabilities and battery life versus the design of the '802 patent claims. *See* A772. Indeed, as the evidence submitted to the jury explained, the efficiency differences between randomizing before combining and thus randomizing N times per set of N data symbols (the '802 patent) and randomizing the combined data symbols one time per set of N data symbols (the accused standards)

makes all the difference in the world for cellular technology. A1034, 1071.

III. The Jury Properly Found The '802 Patent Invalid

Apple's expert explained to the jury that the prior art included everything claimed by the claims at issue. A1035-40. Considering these references, the jury found the asserted claims of the '802 patent invalid as anticipated under 35 U.S.C. § 102. A364. Nevertheless, the district court reversed the jury, finding that Apple had failed to offer substantial evidence of a previously unmentioned claim limitation that the court adopted after trial. A10. The court's post-trial claim reconstruction is against precedent and unsupported by the claim language and specification. The jury's invalidity ruling should be reinstated.

A. The Jury Properly Found The '802 Patent Invalid Under The District Court's Pre-Trial Claim Constructions

The district court's pre-trial construction of "first computing means" was pursuant to an agreement by Apple and Wi-LAN that the term "first computing means" referred to "element 12 and Figures 1

and 4, columns 2:6-10, 2:36-40, 2:58-62, 4:2-12 and 4:35-44." A73.[10] None of those references in the '802 specification refer to "orthogonal codes," a randomizer transform, or a complex multiplier. Based on this construction, Apple's expert explained to the jury that two prior art references anticipated every element of claim 1 of the '802 patent. A1035-38, 1039-40.[11]

In front of the jury, Wi-LAN did not contest that each of the originally construed claim limitations was present in the prior art. Instead, Wi-LAN's expert testified, without displaying the claim language to the jury, that the references did not anticipate the patent because they did not disclose "orthogonal codes." A1124. But as Apple explained to the jury, neither the asserted claims, the court's construction, nor the '802 patent's specification mention "orthogonal codes." A1037. Similarly, Wi-LAN's expert argued that the references

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[10] This agreed-upon construction was the same construction from the *Acer* case. *Wi-LAN, Inc. v. Acer, Inc.*, No. 2:07-cv-00473 (E.D. Tex. Oct. 31, 2007), ECF 469. Like the *Acer* case, this agreed-upon construction does not refer to or encompass Figure 8. *Id.* at 41-44.

[11] As explained (at 57), if this Court concludes that the '802 patent permits randomization to occur *after* combining, Apple presented substantial evidence of anticipation based on a third prior art reference (the Zehavi patent).

failed to disclose a randomizer transform. A1124. This is yet another term that does not appear in the asserted claims or the court's constructions.

During cross examination of Apple's expert, Wi-LAN continued to focus on unclaimed elements, emphasizing the fact that the references do not disclose orthogonal codes, a randomizer transform, or complex multipliers. A1058-61.

Unsurprisingly, because these distinctions are not contained in the construed claims, the jury found the claims invalid.

B. The District Court's Post-Trial Re-Construction Of "First Computing Means" Was Procedurally Improper And Substantively Incorrect

The district court overturned the jury's invalidity verdict because Apple did not provide evidence that the prior art disclosed a "complex multiplier" as part of the claimed "first computing means." A10. In so doing, the court acknowledged that "the Court's identification of the structure for 'first computing means' [at the *Markman* stage] does not specifically provide for a complex multiplier component." A9. The court, however, declared "that [this] does not mean a complex multiplier can never be a necessary component of the structure." *Id.* After citing

testimony from both Apple and Wi-LAN's expert that supposedly supported the requirement of a "complex multiplier," the court adopted the "complex multiplier" as a new, post-trial claim limitation. A7-9. Because "it [was] undisputed that no evidence was presented of complex multipliers in the prior art," the court held that the '802 patent was not anticipated by the prior art and is therefore valid. A10.

As an initial matter, Wi-LAN never attempted to have the court's claim construction altered until after trial. By not objecting to the construction and by not seeking to amend the construction until after the jury rendered a verdict against it, Wi-LAN waived this post-trial claim construction. "[L]itigants waive their right to present new claim construction disputes if they are raised for the first time after trial." *Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683, 694 (Fed. Cir. 2008). This Court's *Hewlett-Packard* decision (cited by WOB 48) is on point. In *Hewlett-Packard*, the district court construed a claim after trial, and then determined that the new construction warranted judgment as a matter of law. 340 F.3d at 1320. This Court reversed, explaining that "[w]hen issues of claim construction have not been properly raised in connection with the jury instructions, it is improper for the district

court to adopt a new or more detailed claim construction in connection with the JMOL motion." *Id.* Instead, "the issue [] should [be] limited to the question of whether substantial evidence supported the verdict under the agreed instruction." *Id.* The JMOL stage "is too late … to argue for or adopt a new and more detailed interpretation of the claim language and test the jury verdict by that new and more detailed interpretation." *Id.* at 1321.

The district court's invalidity ruling suffers from the same error as the district court's decision in *Hewlett-Packard*. The fact that a complex multiplier was not included in the construction given to the jury means precisely that: It was not necessary for Apple to show the new limitation was disclosed in the prior art. The court expressly, A9, added a new limitation to the claim and then faulted Apple for not showing at the trial months earlier that this later-adopted limitation was in the prior art. In so holding, the district court created a moving target after it had already been struck.[12]

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[12] Notwithstanding the court's judgment of non-infringement, if the claims needed to be re-construed to add the complex multiplier limitation (which they did not), the district court should have issued an amended claim construction ruling, and ordered a new trial on the issue

The district court's belated claim construction is also wrong on the merits. The patent's claim language does not refer to a complex multiplier. The claims simply require that modulated data symbols correspond to an invertible randomized spreading. The claims do not specify whether the randomization is performed with a simple multiplier or a complex multiplier. In fact, the claims do not even specify whether the invention must include the "randomizer transform" that is optional in the Figure 4 embodiment.

So too, the patent's specification does not support a complex multiplier requirement in the asserted claims. WOB 10-12. The only mention of complex multipliers appears with regard to Figure 8, where the specification states "Fig. 8 is a schematic showing the Randomizer Transform (RT) where a(1) a(2) … a(N) are complex constants chosen randomly." A99, col. 3:13-14. But the specification further explains that the "Randomizer Transform" is only one example of at least 12 illustrative, potential N-Point transforms that can be part of the first computing means. *Id.* at 4:66-5:7.

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of invalidity. Moreover, Apple should have been permitted, as per the district court's own local rules, to amend its Invalidity Contentions pursuant to P.R. 3-6(a(2)(b)). None of this happened.

Similarly, the embodiment in Figure 4 of a first computing means that utilizes N-point transforms is itself only one potential embodiment.

In addition, the patent describes an embodiment that spreads and randomizes not with N-Point transforms but with pseudo-noise (PN) codes. A98, col. 1:27-29; 2:36-40. Wi-LAN agreed that this embodiment, which is depicted by Figure 1, is also covered by the claims. A73. The specification's explanation of this embodiment never mentions the randomizer transform or complex multipliers.

Moreover, Apple's expert did *not* testify that a complex multiplier is required for the "first computing means" limitation of claims 1 and 10. If anything, Dr. Acompora's testimony demonstrates that the complex multiplier is *not* a required structure of the "first computing means." Dr. Acampora testified that a prior art reference need not describe a complex multiplier to invalidate the '802 patent:

> Q. (By Mr. Thomas) … [T]he Gilhousen reference doesn't describe the randomizer transform shown in Figure 8 of the '802 patent, does it?
>
> A. It does not.
>
> . . .
>
> Q. (By Mr. Scarsi) Does that answer – what Mr. Thomas brought up about the randomizer transform, does that change your opinion on how

> the Gilhousen invalidates the patent at issue in this case?
>
> A. Not at all.

A1074. As the record reflects, Apple's expert testified that to someone of skill in the art, the plain language of the claims does not require complex multiplication.

In the statements quoted by the district court (A8-9), Dr. Acampora simply explained that in an embodiment that involves a complex multiplier, the complex multiplier would be part of the "first computer means." *See, e.g.*, A1045. That has no relevance here, however, because the district court had already held—at the parties' urging and agreement—that the embodiments in claims 1 and 10 did not require a complex multiplier, as evident by the structures that were included in the claim's construction.

Nor is it the case that a complex multiplier is somehow necessary for the invention to function. As Apple's expert explained at trial, several prior systems performed the same functions without the use of complex multipliers. A1035-40, 1058, 1061. And although Wi-LAN aims to re-characterize its patent to prominently feature the randomizer transform and complex multipliers as a solution to the so-

called "peak-to-average" problem, neither the specification nor the claims make any reference to this objective.

The district court's ruling overturning the jury's finding of invalidity should be reversed and the jury's decision reinstated.

IV. The District Court Properly Denied Wi-LAN A New Trial

Wi-LAN complains that Apple's witness testimony and opening and closing statements "urged the jury" to "limit[] the scope of the asserted claims … to LAN (Wi-Fi) transceivers" and "exclude cellular transceivers." WOB 23-24, 63 ("the '802 patent was not a cellular patent"). In Wi-LAN's view, this testimony and attorney argument "profoundly confused" the jury. *Id.* at 61. But, as the district court explained, these arguments are waived. A15-16.

And though Wi-LAN's waiver was a primary basis for the district court's holding denying Wi-LAN a new trial, Wi-LAN does not challenge—or even acknowledge—the district court's waiver holding in its opening brief. "[A]rguments not raised in the opening brief are waived." *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1319 (Fed. Cir. 2006). Because Wi-LAN failed to address the district

court's holding of waiver in its opening brief, Wi-LAN is foreclosed from challenging that holding on appeal.

Moreover, the testimony and statements are accurate. Wi-LAN had "a full and fair opportunity to present its case to the jury." *Devices for Medicine, Inc. v. Boehl*, 822 F.2d 1062, 1066 (Fed. Cir. 1987). The parties had six days to present evidence and cross-examine witnesses, the judge provided ample instruction on how to apply the law to that evidence, A366-408, and the jury found in favor of Apple. The district court did not abuse its discretion in refusing to give Wi-LAN a new trial.

A. Wi-LAN Waived Its Challenge To Apple Witnesses' Description Of The '802 Patent As "Limited To LANs"

Wi-LAN argues that it was improper for Apple to ask the experts and fact witnesses if the word "cellular" appears anywhere in the '802 patent. WOB 25. But if, as Wi-LAN alleges, "Apple encouraged the jury to commit error by improperly arguing and suggesting to the jury that the asserted claim scope could not cover cellular transceivers," WOB 63, that error should have been corrected "by discrediting the erroneous expert testimony either through cross-examination or

through its own expert testimony." *Beckman Instruments, Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551 (Fed. Cir. 1989).

Here, Apple questioned witnesses from both parties regarding the nature of the patent, and Wi-LAN had a "full and fair opportunity" to elicit testimony rebutting Apple's arguments. A16. Where there is "conflicting expert testimony, the jury [is] free to 'make credibility determinations and believe the witness it considers more trustworthy.'" *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1362 (Fed. Cir. 2012) (quoting *Streber v. Hunter*, 221 F.3d 701, 726 (5th Cir. 2000)). Thus, as the district court properly held, "if Apple presented evidence Wi-LAN disputes or finds improper, such as asking witnesses whether the patent includes the term 'cellular,' then the burden shifts to Wi-LAN to make an objection and, if the objection is overruled, cross-examine the witnesses on the correctness or relevance of such testimony." A15.

Because Wi-LAN "did not object to these questions during the course of the trial," Wi-LAN has "waived any objection on the issue." *Id. See also Function Media, LLC v. Google Inc.*, 708 F.3d 1310, 1327 (Fed. Cir. 2013) ("[T]he Fifth Circuit … has held that the 'Court will

consider errors to which no objections were made at trial but will exercise this power only in exceptional cases where the interest of substantial justice is at stake. To reverse, this Court must find plain error.'" (quoting *Shipman v. Cent. Gulf Lines, Inc.*, 709 F.2d 383, 388 (5th Cir. 1983))).

B. Wi-LAN Waived Its Challenge To Apple's Opening And Closing Statements

Wi-LAN quotes extensively from Apple's opening and closing statements, *see* WOB 24-25, arguing that counsel "urg[ed] the jury to limit the scope of the '802 patent to Wi-Fi or LAN transceivers and to exclude cellular transceivers," WOB 24. But the law is clear: "Attorney argument is not evidence" to be considered by the jury, *Elcommerce.com, Inc. v. SAP AG*, 745 F.3d 490, 506 (Fed. Cir. 2014), and the district court specifically instructed the jury as such, A369 ("Statements and arguments of the attorneys are not evidence and are not instructions on the law."); A706 ("[E]ach side's opening statement is not evidence. What the lawyers tell you is not evidence."). *See also InTouch Techs., Inc. v. VGo Commc'ns, Inc.*, 751 F.3d 1327, 1355 n.9 (Fed. Cir. 2014) (where jury instructions "clearly stated that '[a]rguments and statements by lawyers are not evidence,'" any

allegedly improper statements are insufficient to disturb the jury's verdict).

Moreover, the appropriate time to object to Apple's opening and closing statements was during the opening and closing statements, not in a post-trial motion or on appeal. Just as Wi-LAN failed to object to Apple's witness testimony, Wi-LAN similarly failed to timely object to statements made by counsel during opening and closing "and has therefore waived any objection on the issue." A15. *See InTouch*, 751 F.3d at 1355 n.9 (where party alleged that opposing counsel made "improper statements" during closing argument but "failed to raise any objections at that time," the argument was waived); *Bettcher Indus. v. Bunzl USA, Inc.*, 661 F.3d 629, 649 (Fed. Cir. 2011) ("[T]he fact that [the moving party] did not contemporaneously object to the closing argument raises the threshold of prejudice it must establish to be entitled to a new trial."); *Alix v. Quarterman*, 309 F. App'x 875, 879 (5th Cir. 2009) (affirming district court's holding that "any challenges to the prosecution's closing arguments were procedurally barred for failure to timely object." (citing *Wainwright v. Sykes*, 433 U.S. 72, 86-87 (1977))).

C. Apple Properly Highlighted Functional Differences Between The Asserted Claims And The Accused Products

Wi-LAN accuses Apple of "perniciously" arguing that the '802 patent is not a cellular patent. WOB 63. Wi-LAN complains about Apple's statements that Wi-LAN "[was]n't working in cell; [it was] working in wireless," WOB 24 (quoting A718), that "it's not a cell phone patent. It's a LAN patent," WOB 25 (quoting A1170), and that Apple "urged the jury… to limit the claim scope of the '802 patent," WOB 25. Not only is this objection untimely, *supra* at 74-76, it misses the point: Apple's characterization of the '802 patent simply demonstrates why Apple's cellular products do not practice the asserted claims.

As Wi-LAN admits in its opening brief, "Apple's expert testified that the asserted claims do not exclude cellular transceivers [and] that the patent could read on such a cellular device." WOB 64 (citing A1060). Apple's argument was never that the '802 patent *could not* be read on a cell system but, rather, that Qualcomm *would not* have implemented technology from the '802 patent in its cellular chip, A1170, because that technology is "more appropriate" for Wi-Fi, A1071.

As explained above (§ I.B.), unlike Wi-Fi technology, Apple's cellular products do not evenly separate the data symbols because to do so would "squander" bandwidth. And, as also explained above (§ II.B.), unlike Wi-Fi technology, Apple's cellular products randomize *after* combining in order to conserve power. Accordingly, Apple's expert, witnesses and attorneys accurately described the patent asserted here.[13]

D. There Is Nothing For A Jury To Decide In A New Trial

Wi-LAN suggests that even if this Court affirms the jury's non-infringement verdict, it is "alternatively" entitled to a new trial because "Apple's only non-infringement defenses were based solely on

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[13] Wi-LAN cites a post-trial interview with a juror as evidence that the jury was confused by Apple's contention that the '802 patent is more appropriate for a Wi-Fi environment. WOB 65 n.16. Wi-LAN overstates the import of the juror's statement. As just explained, there is a difference between saying that a patent *would* not be used in cellular technology and that it *could* not be used in cellular technology.

More important, such evidence is inadmissible under Federal Rule of Evidence 606(b): "During an inquiry into the validity of a verdict or indictment, a juror may not testify about … the effect of anything on that juror's or another juror's vote." *See Atl. Research Mktg. Sys., Inc. v. Troy*, 659 F.3d 1345, 1359 (Fed. Cir. 2011) (Rule 606(b) "codifies the 'common law prohibition against using jury testimony to impeach a verdict.'" (citation omitted)). This prohibition would necessarily apply to non-sworn, hearsay statements made out of court.

arguments and testimony that added limitations to the court's claim constructions and to the constructions the jury was told to use." WOB 61. But Wi-LAN concedes that "there were no fact disputes regarding the operation of the accused device": Apple's products do not practice the claims as construed by the district court. *Id*. If this Court rejects Wi-LAN's arguments relating to either ground for infringement, there is nothing for a jury to decide. *See, e.g.*, *Cook Biotech, Inc. v. Acell, Inc.*, 460 F.3d 1365, 1382 (Fed. Cir. 2006) (denying a new trial where, "under the correct construction of [the disputed] terms, there is no material factual dispute that [the accused product] cannot literally infringe [the asserted claims]").

CONCLUSION

For the foregoing reasons, the district court's judgment of non-infringement should be affirmed and its judgment of validity of the '802 patent should be reversed.

Dated: December 15, 2014 Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on December 15, 2014, the foregoing Response and Opening Brief of Defendant-Cross-Appellant Apple Inc. was electronically filed with the Clerk of the Court for the United States Court of Appeals for the Federal Circuit using the appellate CM/ECF system. All participants in the case are registered CM/ECF users and service will be accomplished by the appellate CM/ECF system.

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CERTIFICATE OF COMPLIANCE
UNDER FEDERAL RULES OF APPELLATE PROCEDURE
32(a)(7) AND FEDERAL CIRCUIT RULE 32

Counsel for Apple Inc. certifies that the brief contained herein has a proportionally spaced 14-point typeface, and contains 15,110 words, based on the "Word Count" feature of Word 2010, including footnotes and endnotes. Pursuant to Federal Rule of Appellate Procedure 32(a)(7)(B)(iii) and Federal Circuit Rule 32(b), this word count does not include the words contained in the Certificate of Interest, Table of Contents, Table of Authorities, and Statement of Related Cases.

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